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*2012 Discretionary Grant Program –  
Value Pricing Pilot Grant Application*

# **Multimodal Value Pricing for Metered Curbside Parking**

Submitted to

**United States Department of Transportation**

Federal Highway Administration

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Submitted by

**District of Columbia Department of  
Transportation (DDOT)**

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## Description of the Congestion Problem

The Washington DC metropolitan area was rated as the most congested area in the country in 2011<sup>1</sup>. Congestion in the metropolitan area has been increasing over the last 20 years. In 1982, the DC metropolitan area was ranked as the 18<sup>th</sup> most congested area in the United States; now it is number 1. Other congestion metrics (such as delay per passenger, percentage of VMT in congested condition, hours of congestion, delay cost per traveler, etc.) have been trending in the wrong direction over the last twenty years.

The trends are expected to continue. Travel forecasts conducted by the Metropolitan Washington Council of Governments (MWCOG) predict increasing levels of congestion and travel in the metropolitan area and the urban core.

The District of Columbia is at the core of the metropolitan area. The population of DC doubles during work days. Every day 600,000 commuters enter the city from the surrounding areas. In addition, DC hosts 125,000 tourists on a typical day.

Washington DC has over 1100 miles of roadways. Less than 15 miles is freeways. Hence, DC is mostly an arterial system. The efficiency of the transportation system is dictated to a large extent by how effectively the arterial roadways operate.

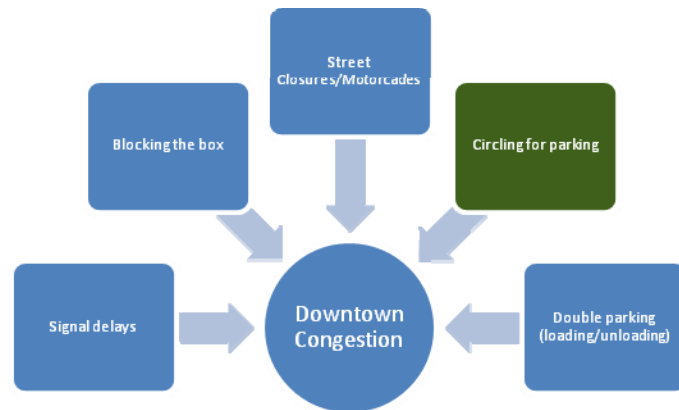
DC also has some very unique travel characteristics:

- One out of every four vehicle trip entering the District is a “cut through” – they do not have a destination within DC.
- 2 out of 3 cars in the District during rush hours are from out of state.
- DC has one of the most multi-modal transportation system
  - 2<sup>nd</sup> highest percentage of non-vehicle mode share.
  - 33% Transit (2<sup>nd</sup> to NY)
  - 1.2% Bike (10<sup>th</sup> in country)
  - 12% Walk (2<sup>nd</sup> to Baltimore)

A study conducted by the District estimates that as much as 25% of the congestion downtown is attributed to people circling around the block to find an open on-street parking space<sup>2</sup>. Exhibit 1 shows some of the identified causes of congestion in downtown DC.

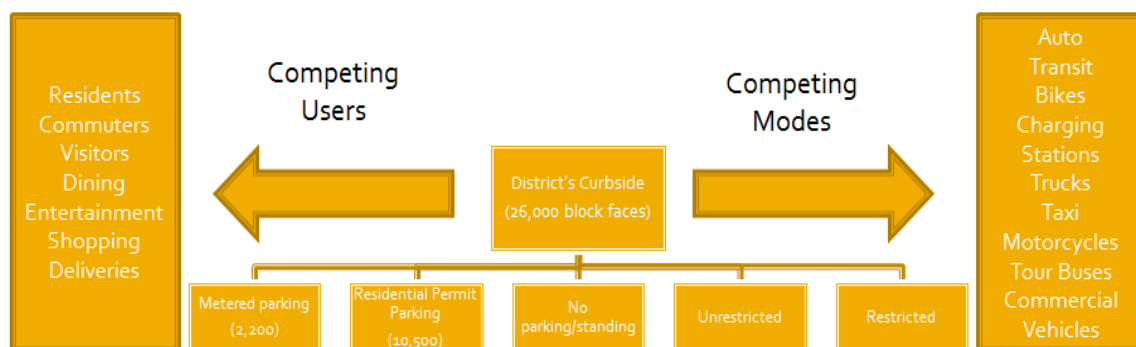
<sup>1</sup> 2011 Annual Mobility Report, Texas Transportation Institute, <http://mobility.tamu.edu/ums/>

<sup>2</sup> Traffic Modeling performed as part of Downtown Congestion Task Force Study (2004)  
<http://www.downtowndc.org/programs/transportation/issue-briefs/issue-brief-2>

**Exhibit 1. Causes of Congestion in Downtown DC**

## Program Description & Goals

Curbside space is a precious asset in an urban environment. There are competing demands on the curbside space. The demands come from competing land uses and competing modes as shown in Exhibit 2.

**Exhibit 2. Competing Demands on Curbside Space in an Urban Environment**

In an arterial environment, managing the curbside effectively has significant impacts on congestion. The aim of this grant application is to address the congestion problem by using pricing as a mechanism to more effectively manage the curbside.

Pricing strategies will be employed to:

- Make at least one metered parking space per block face available for on-street parking.

- Price loading zones to encourage deliveries and other commercial activities on the curbside to occur during off-peak hours
- Price bus zones to encourage efficient use of curb space
- Provide parking availability information to customers, delivery companies and intercity buses on a real-time basis
- Identify techniques to accurately estimate parking availability by fusing limited amount of real-time data sensor data with archived data. If successful, this technique will enable other jurisdictions to estimate real-time parking occupancy in a much more cost effective manner. Currently jurisdictions use 1-1.5 sensors per space to accurately predict occupancy.
- Explore the feasibility of various “asset-lite” solutions to dynamic pricing. These will include pay by cell only parking at loading zones and bus stops, removing parking meters from one side of the street for pay by cell only customers, etc.

The pilot project will be conducted in the Chinatown/Penn Quarter area of Downtown DC. Dynamic pricing will be applied to passenger vehicles, commercial vehicles (loading zones) and intercity buses at bus stops.

## Pilot Area Description

DDOT intends to conduct this value pricing proposal in the Chinatown/Penn Quarter area of downtown DC. This is the area bounded by 12<sup>th</sup> Street NW in the west, 3<sup>rd</sup> Street NW in the east, H Street NW in the north and Pennsylvania Avenue NW in the south. It is a diverse, congested, vibrant subarea with competing modes and competing land uses. The proposed study area (shown in Exhibit 3) comprises of:

- 160 block faces
- 1800 metered curbside spaces
- 30 loading zones
- 10 long distance bus stop locations

It includes major generators such as:

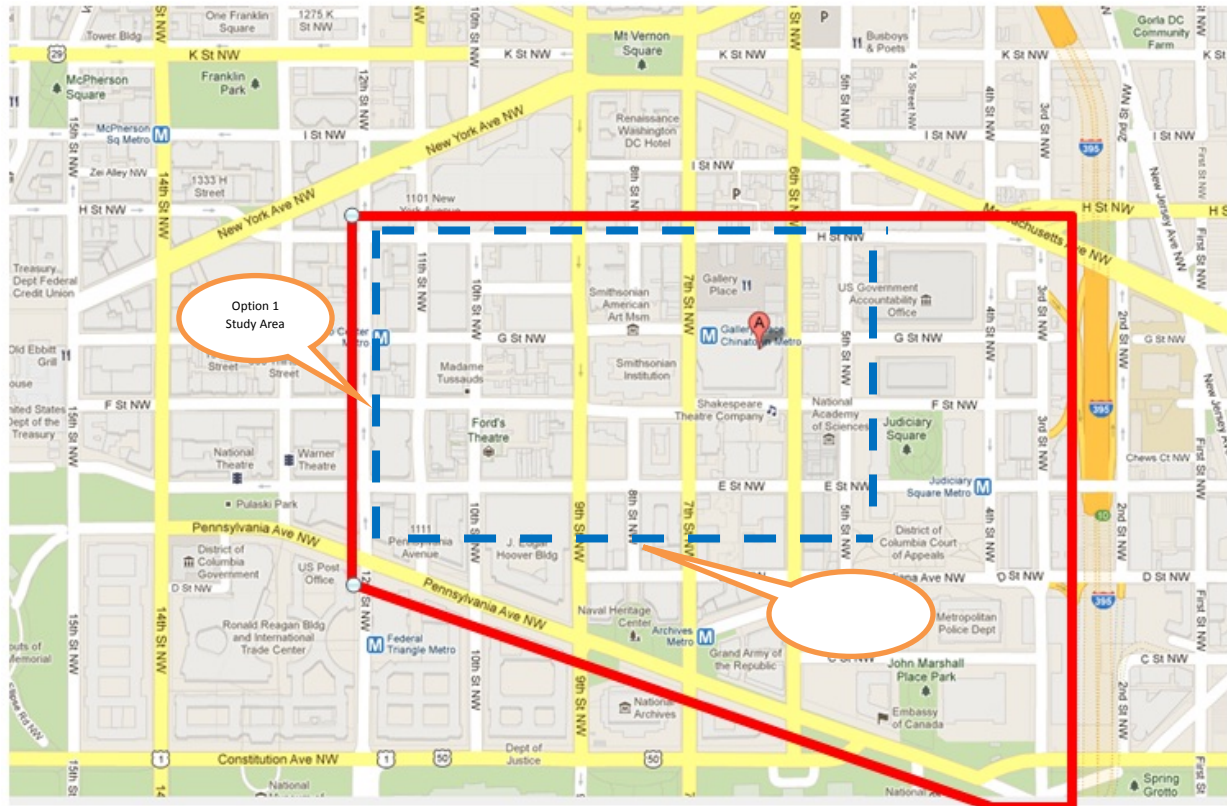
- Verizon Center
- Chinatown
- Courts
- Office Buildings
- Museums
- Retail
- Restaurants

It also includes a multi-modal transportation system comprising of:

- Freeway-Arterial interaction at the east end of the area
- Three major metro stations
- Different functional arterial classes of arterials including two designated evacuation routes
- Loading zones
- Metro, Circulator bus stops and routes

- Intercity bus stops
- High pedestrian traffic
- Four bike share locations
- Six Zip Car spaces

### Exhibit 3. Proposed Study Area



For the purposes of this proposal, DDOT is proposing an alternative option that includes a smaller study area. This area has approximately 1000 metered spaces, but retains most of the functionalities and dynamics of the larger study area.

### Anticipated Effects of Pricing Program

The benefits of the pricing program will be:

- Reduced congestion due to reduced circling
- Reduced secondary accidents due to reduction in distracted driving and turning movements
- Reduced emissions
- Reduced fuel consumption
- Improved customer service by providing real-time traveler information
- Better management of commercial vehicles

- Better management of intercity buses
- Test “asset lite” virtual solutions such as pay by cell
- More cost effective ways of deriving real-time occupancy data

## Proposal Assessment

FHWA has indicated the criteria that will be used for evaluating the proposals. DDOT believes that the proposal meets all the requirements and adds significant value to the value pricing body of knowledge.

### Exhibit 4. Proposal Assessment against Evaluation Criteria

Proposal Evaluation Criteria	Comments
Degree to which new, innovative value pricing approaches are included	<ul style="list-style-type: none"> <li>➤ Multimodal curbside value pricing approach including passenger vehicles, commercial vehicles and intercity bus</li> <li>➤ Tests “asset lite” and cost effective solutions such as pay by cell only parking (without parking meters), deriving occupancy data through data fusion</li> <li>➤ Pilot zone is in multi-modal urban environment with different competing uses</li> <li>➤ Solutions are scalable</li> </ul>
Degree to which stakeholder groups, including (among others) business groups, environmental groups, and advocates for social equity, are involved in and supportive of the project and the project is likely to win broad public support.	<ul style="list-style-type: none"> <li>➤ Solutions tested as part of the pilot and part of DDOT strategic plan that has been vetted with key stakeholders</li> <li>➤ Concepts discussed at Parking Think Tank hosted by DDOT on October 26, 2011. All partner agencies (DPW, DMV) and business improvement districts (BIDs) were part of the discussions.</li> <li>➤ DDOT had discussions on variable pricing for meters with key policy and decision makers within the District government</li> <li>➤ Leverages DC’s efforts on tour bus management and freight/loading zone management</li> </ul>
Degree to which the project is likely to lead to relatively near-term implementation	<ul style="list-style-type: none"> <li>➤ Proposal build on findings of pilot projects that DDOT conducted in 2010</li> <li>➤ Proposal based on DDOT strategic plan that has been vetted with all key stakeholders</li> <li>➤ Contracting vehicles in place for most procurements</li> </ul>
Degree to which it is demonstrated that the project is testing especially promising strategies such that their implementation will likely then be replicated broadly.	<ul style="list-style-type: none"> <li>➤ Solutions are scalable and repeatable</li> <li>➤ Lessons learned can be transferred to other jurisdictions</li> </ul>

DDOT has also assessed the proposal against the “desirable outcomes”. Exhibit 5 below evaluates the proposal against the desired outcomes.

### Exhibit 5. Proposal Assessment against Desired Outcomes

Outcome Measures	Impact	Comments
<b>CONGESTION REDUCTION</b>		
Reduce traffic congestion and delay experienced by the freight sector	☺	Encourages freight travel during off-peak hours
Reduce traffic congestion and delay experienced by personal travelers	☺	Circling around the block accounts for up to 25% of congestion downtown
Maximize economic return on existing investment by optimizing use of the existing transportation infrastructure	☺	Maximizes operational efficiency by better managing existing curb space.



Outcome Measures	Impact	Comments
		The goal is to increase “operational capacity”.
<b><i>To what extent will revenue from road pricing</i></b> provide signals for where new multi-modal transportation capacity (including transit, bike, pedestrian, ridesharing, etc.) is really needed and provide revenues to pay for it, while at the same time reducing the need for highway expansion	☺	Revenues from parking are earmarked towards DC’s WMATA subsidies. Single space meter poles will be retrofitted as bike racks and increase bicycle parking supply in the study area. DDOT has some flexibility in dedicating revenues in a pilot area.
<b>EQUITY</b>		
<b><i>To what extent will costs and benefits be distributed so that:</i></b> Low-income travelers or other transportation disadvantaged groups pay less on average for their travel or have a better travel experience at the same cost	☺	Parking meter revenues are used to pay the District’s share for WMATA subsidies. WMATA uses the subsidies to operate Metrorail, Metrobus and MetroAccess.
<b><i>To what extent will revenues be used to:</i></b> Provide accommodations that are especially important to low-income travelers or other transportation disadvantaged groups		
<b><i>To what extent are equity impacts mitigated so that:</i></b> Concerns of low-income or other transportation disadvantaged groups are addressed		
<b>LIVABILITY</b>		
<b><i>To what extent will the project directly enhance livability by:</i></b> Improving neighborhood design and facilitating compact form (e.g., if parking pricing curtails demand, thus allowing alternative uses for land dedicated to surface parking)	☺	Existing parking meter poles will be retrofitted to provide for bicycle parking. This will increase bicycle parking supply in the study area.  Reduced congestion will increase the predictability of transit travel times, which induces more transit usage.  Managing the loading zones more effectively reduces phenomenon such as double parking for lading/unloading.
<b><i>To what extent will forecasted reductions in traffic make available:</i></b> An opportunity for traffic calming and human-scale design enhancements More road space to accommodate pedestrians and bicyclists by reducing the amount of road space needed to accommodate motor vehicles in motor vehicle travel lanes Faster bus travel and better bus stop designs		
<b><i>To what extent will revenue from pricing contribute to:</i></b> Infrastructure costs for pedestrian and bicycle improvements Transit infrastructure and operations Ridesharing programs		
<b>SUSTAINABILITY</b>		
<b><i>To what extent will forecasted reductions in traffic:</i></b> Reduce greenhouse gas emissions, improve energy efficiency, and reduce dependence on fossil fuels Reduce air, water and noise pollution and damage to ecosystems Support transit-oriented land development	☺	Reduces cruising results in lower fuel consumption, emissions
<b><i>To what extent will revenue from pricing contribute to:</i></b> Funding of a multi-modal transportation system that meets the sustainability objectives listed immediately above	☺	WMATA subsidy, increased bike parking supply

## Role of Alternative Transportation Modes

As discussed earlier in the proposal, the study area is truly multimodal. It includes the three busiest Metro stations, has some of the highest pedestrian traffic, and includes bike share stations, zip car locations, WMATA bus stops and circulator bus stops.

The project applies pricing strategies to three specific modes of travel – passenger vehicles, commercial vehicles and intercity buses. Hence it will be able to test the price sensitivity and congestion impacts of three separate modes.

Parking meter revenues in the District contribute towards DC’s WMATA subsidies. Hence revenues generated in the pilot area will primarily go towards transit service. In a pilot area, DDOT has some flexibility in earmarking revenue. DDOT will explore the opportunity of allocating any incremental revenue generated as part of this project to expanding the study area or scaling-up the program to other parts of the District.

The project will also provide a unique opportunity to retrofit the existing single space meter poles to decorative bike racks. This will increase the overall supply of bicycle parking in the area – an issue that the bicycle community and WABA has been enthusiastic about.

## Project Scope/Task Description

This section describes the major tasks involved in the project.

### Task 1: Program Planning, Management and Evaluation

This task will involve the overall management of the grant and developing the detailed plan for the project including the concept of operation, the requirements for the various subsystems (dynamic pricing, traveler information), pricing structure for passenger vehicles, freight and bus parking and the data collection and evaluation plan. It has two major components.

**Task 1.1 Program Management** – DDOT will dedicate an equivalent of 0.5 FTE to administer and monitor the grant program. This support will be available through the three-year life cycle of the project. Under this task, DDOT will conduct program management functions such as coordination with Federal Highway Administration (FHWA), procurement management, project administration, quality assurance, stakeholder management, and risk management. The program will be managed consistent with Project Management Institute’s (PMI) standards. The five process groups and nine knowledge areas identified in the Project Management Book of Knowledge<sup>3</sup> will be utilized for program/project management.

**Task 1.2 Consultant Support** – DDOT will engage the services of a consultant to develop the detailed work program, project management plan, project evaluation plan, requirements documents and

<sup>3</sup> 2008 Project Management Institute. *A Guide to the Project Management Body of knowledge (PMBOK Guide)* – Fourth Edition.

concept of operations for the various subsystems, stakeholder management/public outreach plan, data collection and evaluation plan, pricing strategies, etc.

Major deliverables will include:

- Program management plan
- Concept of operations plan
- Requirements for dynamic pricing
- Requirements for traveler information system
- Requirements for fusing detector and archived data for cost-effective real-time occupancy
- Stakeholder/public outreach plan
- Pricing strategies for passenger vehicles, freight and intercity buses
- Evaluation plan
- Data collection plan
- Final evaluation document

## **Task 2: Develop, Test and Implement Dynamic Pricing Algorithm & Structure**

Based on the requirements developed in Task 1, this task will involve developing the algorithm for dynamic pricing based on real-time occupancy information. The real-time element of dynamic pricing will be implemented incrementally. At the outset, prices will be set based on discrete parameters such as time of day, day of week, planned event schedules, etc. As customers get used to variable pricing structure, the frequency of pricing will be changed based on real-time occupancy.

At intercity bus stops and loading zones, the prices will be set based initially on the level of congestion and activity in the study area during different time periods. As an example, loading zones will be priced the highest during rush hours and lowest during time periods of lowest demands. Prices will be adjusted based on impacts of pricing on demand.

Major deliverables will include:

- Dynamic pricing algorithm/rate structure schedule for passenger cars, freight/commercial vehicles and intercity buses

## **Task 3: Develop, Test and Implement Traveler Information System**

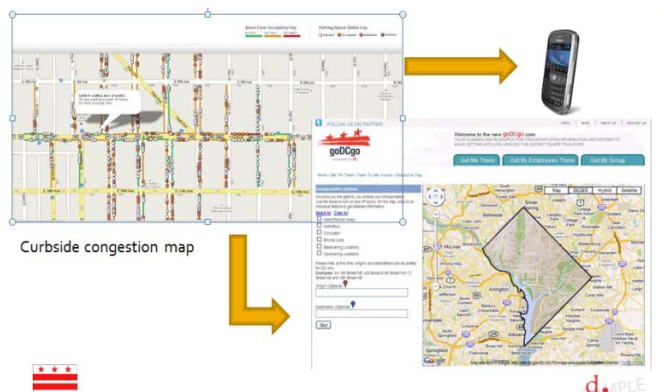
Based on the requirements developed in Task 1, this Task will involve developing a real-time traveler information system based on parking availability information from the occupancy sensors. This information will be made available to customers on a real-time basis to their smart phones and other traditional channels such as the godcgo.com website (shown in Exhibit 6).

DDOT will also work with the Downtown BID and off-street garage owners to provide availability information as part of this system.

Major deliverables will include:

- System for delivering real-time parking availability information to customers through different distribution channels.

#### Exhibit 6. Real-Time Parking Availability Information



#### Task 4: Outreach, Survey, Data Collection

This task will include continued outreach to various stakeholder groups on the purpose, scope and benefits of this pilot. This includes the traditional parking patrons as well as commercial vehicle operators and tour buses. It will also involve collecting baseline data for the study area. Most of the data will be available through automated systems, but DDOT anticipates collecting limited amount of manual data based on the needs identified in Task 1.

Major deliverables include:

- Preparation for and participation in stakeholder meeting
- Before and after survey of key stakeholders
- Collection of baseline and after data using automated systems and manual counts

#### Task 5: Fusing Sensor and Historical Data for Parking Occupancy Estimation

This task will include devising a procedure for developing real-time occupancy information in a cost-effective fashion. Currently, the state of the practice is to place sensors in every parking spot to collect this information. In some urban areas, multiple sensors are needed to accurately predict occupancy because of interference of utilities and other issues (such as configuration of multi space meters). This is a high cost (capital and operating) solution.

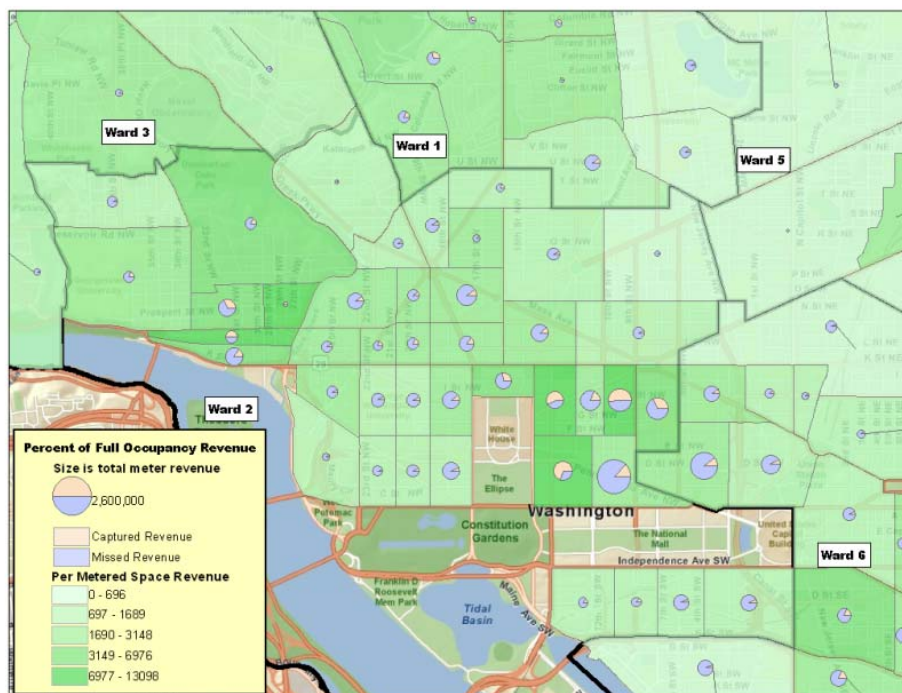
The goal of this task is to develop reliable occupancy information by fusing limited amount of sensor data, historical information and other anecdotal data elements that are readily available. The team will draw from experiences and algorithm used in other transportation areas. An example is the algorithm and methodology for developing travel times and speeds using a combination of probe data, roadside detectors and historical data.

DDOT has already done some preliminary research in this area. As an example, meter capture rate (ratio of actual meter revenue to theoretical maximum revenue) is a function of occupancy, meter uptime and percentage paid legal.

Capture Rate =  $f$  (Meter uptime, Occupancy, Paid Legal)

Meter uptime is available on a real-time basis for networked meters. Capture rate (shown in Exhibit 7) and percentage paid legal data can be mined by location, time of day, day of week, etc. A sampling of occupancy data can be used to develop real-time occupancy.

#### Exhibit 7. Meter Revenue Capture Rate



#### Task 6: Procure and Install 50 Speed/Volume/Classification Sensors

This Task will involve procuring and installing up to 50 sensors at critical locations in the study area to develop baseline data and monitor impacts of different pricing strategies on congestion and travel behavior in the study area. The sensors will be installed based on the data collection and evaluation plan developed in Task 1. A contract for procuring and installing sensors is already in place.

Major deliverables include:

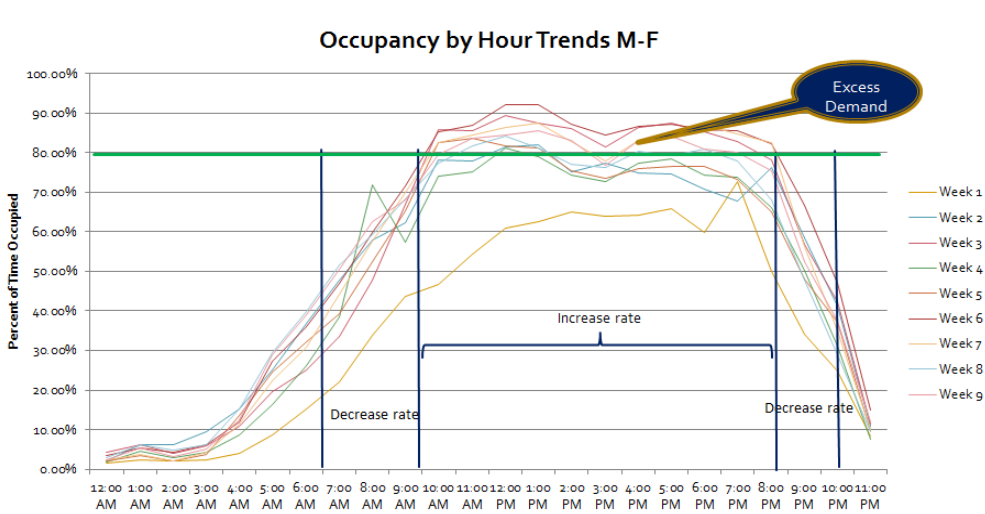
- Installation of up to 50 speed, volume, classification sensors in the study area

## Task 7: Procure and Install 1800 Parking Occupancy Sensors

This Task will involve procuring and installing up to 1800 sensors at each of the parking spots, bus stops and loading zones in the study area to develop baseline data and monitor impacts of different pricing strategies on metered curbside parking. DDOT has this pay item in the RFP that was issued for parking meter maintenance, management and collection.

Exhibit 8 shows occupancy data in the Friendship Heights area for a 9 week period that was collected as part of the pilots.

**Exhibit 8. Sample Occupancy Data**



Major deliverables include:

- Installation of up to 1800 parking occupancy sensors

## Task 8: Retrofit 100 Existing Pay-by-Space Multi-Space Meters to Pay by Space Configuration

This Task involves changing the hardware and software on the existing 100 Multi Space Meters (MSM) that operate in the pay by space environment to the pay by space format. This involves changing

hardware (such as adding a keypad) and making software upgrades to the existing Parkeon Stelio machines in the study area.

One of the lessons learned during the pilots that were conducted over the summer in DC was that pay by space and single space is the preferred configurations if accurate occupancy data is required. In the pay and display and pay by license plate configurations, where the car parks along the curb space is not fixed. Hence the occupancy sensor information is not accurate.

Major deliverables include:

- Retrofitted Parkeon machines in the pay by space configuration

### **Task 9: Procure and Install Smart Meters (local match)**

For dynamic pricing to be implemented, the meters need to be networked so that pricing information can be altered in real-time. This involves changing the 1000 non-networked single space meters with networked single or multi-space meters. DDOT has contracting mechanism in place for procuring meters for 1000 spaces.

Major deliverables include:

- Networked meters controlling 1000 spaces installed

### **Task 10: Operating Cost for 3 Year (local match)**

Operating cost for the assets include:

- Licensing, communication, data transfer fees associated with the meters
- Licensing, communication fees for parking occupancy sensors
- Licensing, communication fees for vehicle speed, volume, occupancy sensors
- Meter consumables – batteries, paper, maintenance, operation and collection
- Credit card transaction fees

## **Project Timeline**

DDOT believe that the project can be implemented expeditiously. The project is aligned with DDOT's long-term vision and strategy for its parking program. Moreover, the concepts and tools included as part of this pilot have already been tested in the District over the last two years. Last summer DDOT pilot tested 6 different programs related to metered on-street parking. The pilots included the latest in meter hardware, software and payment technologies. The program will also leverage successful programs such as pay by cell. A detailed schedule is shown in Exhibit 9.

### Exhibit 9. Project Timeline

Task #	Task Name	Months from NTP		Duration (months)
		Start	Finish	
Task 1	Program Planning, Management & Evaluation	0	36	36
Task 1.1	Program Management (0.5 FTE for 3 Yrs)	0	36	36
Task 1.2	Consultant Support	2	36	34
Task 2	Develop, test and implement algorithm for dynamic pricing	6	18	12
Task 3	Develop, test and implement algorithm for traveler information	9	21	12
Task 4	Outreach, survey, data collection	1	24	23
Task 5	Fusing Sensor and Historical Data for Parking Occupancy Estimation	1	36	35
Task 6	Install 50 speed, volume and occupancy sensors	3	6	3
Task 7	Procure and install 1500 space sensors	4	6	2
Task 8	Retrofit 100 MSM to pay by space configuration	6	9	3
Task 9	Procure and install smart meters for 1000 spaces	6	8	2
Task 10	Operating cost for 3 years	9	36	27

### Project Budget

As discussed earlier, DDOT is proposing two options as part of this grant application. The first option involves approximately 1800 metered spots; the second one approximately 1000 metered spots.

Under the first option DDOT is seeking \$1.62 million in Federal funds and matching \$1.02 million with local funds.

Under the second option DDOT is seeking \$1.09 in Federal funds and proposing to match \$0.41 million in local funds.

Exhibit 10 outlines the project budget and spending plan for the two options.



## Exhibit 10. Project Budget and Spend Plan

<b><u>Option 1 - Study Area Encompasses 1800 Metered Spaces</u></b>						
Task	Sub-Task	Task/Subtask description		Spending Plan		
			Budget	Year 1	Year 2	Year 3
Task 1		Program Planning, Management & Evaluation	\$ 350,000			
	Task 1.1	Program Management (0.5 FTE for 3 Yrs)	\$ 150,000	\$ 50,000	\$ 50,000	\$ 50,000
	Task 1.2	Consultant Support	\$ 200,000	\$ 100,000	\$ 50,000	\$ 50,000
Task 2		Develop algorithm for dynamic pricing	\$ 100,000	\$ 50,000	\$ 50,000	
Task 3		Develop algorithm for traveler information	\$ 150,000	\$ 25,000	\$ 100,000	\$ 25,000
Task 4		Outreach, survey, data collection	\$ 100,000	\$ 30,000	\$ 40,000	\$ 30,000
Task 5		Fusing Sensor and Historical Data for Parking Occupancy Estimation	\$ 75,000	\$ 40,000	\$ 25,000	\$ 10,000
Task 6		Install 50 speed, volume and occupancy sensors	\$ 25,000	\$ 25,000		
Task 7		Procure and install 1800 space sensors	\$ 720,000	\$ 720,000		
Task 8		Retrofit 100 MSM to pay by space configuration	\$ 100,000	\$ 100,000		
		<b>FEDERAL SHARE</b>	<b>\$ 1,620,000</b>	<b>\$ 1,140,000</b>	<b>\$ 315,000</b>	<b>\$ 165,000</b>
Task 9		Procure and install smart meters for 1000 spaces	\$ 700,000	\$ 700,000		
Task 10		Operating cost for 3 years	\$ 324,000	\$ 108,000	\$ 108,000	\$ 108,000
		LOCAL MATCH	\$ 1,024,000	\$ 808,000	\$ 108,000	\$ 108,000
		<b>TOTAL PROJECT COST</b>	<b>\$ 2,644,000</b>	<b>\$ 1,948,000</b>	<b>\$ 423,000</b>	<b>\$ 273,000</b>
<b><u>Option 2 - Study Area Encompasses 1000 Metered Spaces</u></b>						
Task	Subtask	Task/Subtask description		Spending Plan		
			Budget	Year 1	Year 2	Year 3
Task 1		Program Planning, Management & Evaluation	\$ 300,000			
	Task 1.1	Program Management (0.5 FTE for 3 Yrs)	\$ 150,000	\$ 50,000	\$ 50,000	\$ 50,000
	Task 1.2	Consultant Support	\$ 150,000	\$ 75,000	\$ 30,000	\$ 45,000
Task 2		Develop algorithm for dynamic pricing	\$ 100,000	\$ 50,000	\$ 50,000	
Task 3		Develop algorithm for traveler information	\$ 150,000	\$ 25,000	\$ 100,000	\$ 25,000
Task 4		Outreach, survey, data collection	\$ 75,000	\$ 25,000	\$ 20,000	\$ 30,000
Task 5		Fusing Sensor and Historical Data for Parking Occupancy Estimation	\$ 50,000	\$ 40,000	\$ 10,000	
Task 6		Install 30 speed, volume and occupancy sensors	\$ 15,000	\$ 15,000		
Task 7		Procure and install 1000 space sensors	\$ 400,000	\$ 400,000		
		<b>FEDERAL SHARE</b>	<b>\$ 1,090,000</b>	<b>\$ 680,000</b>	<b>\$ 260,000</b>	<b>\$ 150,000</b>
Task 8		Retrofit 100 MSM to pay by space configuration	\$ 100,000	\$ 100,000		
Task 9		Procure and install smart meters for 200 spaces	\$ 140,000	\$ 140,000		
Task 10		Operating Cost for 3 years	\$ 175,000	\$ 60,000	\$ 60,000	\$ 60,000
		LOCAL MATCH	\$ 415,000	\$ 300,000	\$ 60,000	\$ 60,000
		<b>TOTAL PROJECT COST</b>	<b>\$ 1,505,000</b>	<b>\$ 980,000</b>	<b>\$ 320,000</b>	<b>\$ 210,000</b>

## Project Monitoring and Evaluation

The data collection plan and before and after analysis will be an integral part of this proposal.

- DDOT will install up to 50 speed/volume/occupancy sensors in the study area to collect traffic volume data.
- Occupancy sensors will be analyzed to assess impacts on occupancy at metered locations, loading zones and curbside data.
- Leverage some of the existing relationships for manual counts on an as needed basis. DDOT has agreements in place with the Metropolitan Washington Council of Government (MWCOC), the Business Improvement Districts (BID) to perform various counts on an as needed basis.
- Existing CCTV cameras in the study area will also be used for data collection and analysis
- DDOT proposes to conduct customer surveys (including freight and tour buses) to solicit input
- DDOT will also use traditional press and social media channels to solicit input and feedback on the pilot
- DDOT is committed to authoring papers and participating in national conferences to share lessons learned from the pilot with a broader audience.

## Stakeholder Involvement

This proposal is a logical next step for DDOT based on the findings of the pilot. It is aligned with the goals of the parking program, the strategic parking plan and the vision of the agency. Consequently it has been extensively vetted with key stakeholders over the last two years. Some of the key outreach activities that have been performed are shown in Exhibit 11 below.

### Exhibit 11. Outreach with Key Stakeholders

Stakeholders	Outreach Effort
Other District Agencies <ul style="list-style-type: none"> <li>➤ Department of Public Works (Enforcement)</li> <li>➤ Department of Motor Vehicles (Adjudication)</li> <li>➤ Office of Unified Communication (Customer Service Calls)</li> <li>➤ Office of Chief Technology Officer (Intelligent Voice recognition System for Call Intake)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Monthly Coordination Meeting</li> <li>➤ Part of RFP formulation and selection process for Pilot programs and other major programs such as Pay by Cell</li> <li>➤ Parking Think Tank</li> </ul>
Business Improvement Districts	<ul style="list-style-type: none"> <li>➤ Discussion of DDOT Strategic Parking Plan</li> <li>➤ Parking Think Tank</li> </ul>
Media (Print, Radio, TV) Social Media	<ul style="list-style-type: none"> <li>➤ Very engaged and interested on parking issues</li> <li>➤ DDOT very engaged on social media channels</li> </ul>
Policy/Decision Makers in District Government	<ul style="list-style-type: none"> <li>➤ On-going discussion about dynamic pricing; networked assets; cost-effective parking solutions; better customer service</li> </ul>
Customers	<ul style="list-style-type: none"> <li>➤ Online customer survey was an input to the evaluation process after the pilots of 2010</li> </ul>
Washington Area Bicycle Association	<ul style="list-style-type: none"> <li>➤ Discussion of enhancing bicycle parking supply using parking meter poles</li> </ul>
DC Residents	<ul style="list-style-type: none"> <li>➤ Parking Think Tank in every Ward being scheduled</li> </ul>

## Private Sector Involvement

DDOT will involve the public sector in performing the project. Consultant/contractor selection will be through the competitive bid process and will adhere to District and Federal procurement policies, standards and regulations.

In most cases the District has contracting vehicles in place for procurement of goods and services required under this contract. These contracts were awarded using the competitive procurement process. DDOT will work with FHWA to assess whether those vehicles meet all the grant/Federal requirements. If they do, then DDOT can work towards implementing the project in a very expeditious fashion.